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10/777,082	02/13/2004	Takahiro Matsumoto	396.43509X00	4125
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VDAYAKUMAR, KALLAMBELLA M				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/777,082

Applicant(s)

MATSUMOTO ET AL.

Examiner

KALLAMBELLA VIJAYAKUMAR

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-12,14,15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) 6-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,12,14,15,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

- The amendment filed along with the arguments on 08/11/2008 has been entered, and they have been fully considered. They overcome the rejections cited in the last office action.
- Claims 1-3, 5-12, 14-15 and 17-18 as amended are currently pending with the application. Claim-1 was amended. New Claims 17-18 were added. Claims 6-11 withdrawn. Claims 3, 13 and 16 cancelled. Claims 1-3, 5, 12, 14-15 and 17-18 are being prosecuted.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claims 14-15 are objected to because of the following informalities: Claims 14 and 15 depend on the cancelled claim-13. Appropriate correction is required.

The examiner construes these claims to depend upon claim-1 based on the earlier version of claims 11/16/2007 for the purposes of examination.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1793

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-3 and 17-18 are rejected under 35 U.S.C. 102(a/e) as anticipated by, or in the alternative under 35 USC 103(a) as obvious over Yadav et al (US 2003/0207978).

Yadav et al teach the composition of nanofillers with a preferred form of whiskers, rods, plates and fibers (Abstract). The fillers included nanostructured acicular ITO nanopowder (Fig-2-3; P-0024, 30) with a domain size less than 100 nm, and aspect ratio of 25 or less (P-0009, 34, 40). The nanofillers were pre-coated with matrix composition i.e. a polymer or an oxide or

nitride or boride coating (P-0046, 50, 54). Matrix materials included polymers such as PMMA and oxides such as zinc oxide (P-0077).

With regard to the properties in claims 1-3 and 17-18, the prior art nanofiller is either same or substantially same as that claimed by the applicants having same components and structure, and Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

A specific example teaches coating ITO powder with a particle size of 60 nm diameter with PMMA (Example-4; 0058, 73-74), and “[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated’ if one of them is in the prior art.” Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Yadav et al be insufficient to anticipate the instant claims, the instant claimed composition nonetheless would have been obvious to a person of ordinary skilled in the art over the disclosure because the reference teaches each of the claimed ingredients within the composition, structure and a method of making it, and it has the same common utility as filler in a matrix. The burden is upon the applicant to prove otherwise. In re Fitzgerald, 619 F.2d 67, 205 USPQ594 (CCPA 1980)

2. Claims 5 and 14-15 are rejected under 35 USC 103(a) as obvious over Yadav et al (US 2003/0207978).

The disclosure on the composition and structure of Yadav et al as set forth in rejection-1 is herein incorporated.

The prior art is silent about the thickness of the insulating film per claim-5 and fails to teach the instant claimed ranges for the aspect ratio per claims 14-15.

Pertaining to claim-5, the surface-layer/insulating-film thickness is considered to be a variable that is optimizable by routine experimentation by a person of ordinary skill in the art, because prior art teaches coating the filler particle with a thin surface layer (P-0046).

Pertaining to claims 14-15, the prior art aspect ratio of 25 or less either lies inside or overlaps with the instant claimed ranges, and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

3. Claim 12 is rejected under 35 USC 103(a) as obvious over Yadav et al (US 2003/0207978) in view of Yashiro et al (US 6,521,677).

The disclosure on the composition and structure of Yadav et al as set forth in rejections -1 and 2 are herein incorporated.

The prior art fails to teach a composition containing Sb doped SnO₂ per the claim.

In the analogous art, Yashiro et al teach the use of rod-like or fibrous metal oxide particles with a diameter of 0.001- 2 micron, preferably 0.001-0.05 micron with alkoxysilane or

Art Unit: 1793

its hydrozylate, and dispersed in a polymer matrix with transparency and high refractive index (Abstract; Cl-3, Ln 65- Cl-4, Ln 35; Cl-10, Ln 14-65; Cl-19, Tbl-2). The specific metal oxide fillers included antimony doped tin oxide and indium tin oxide (Cl-10, Ln 53-56).

It would have been obvious to a person of ordinary skilled in the art to substitute the nanofiller in the composition of Yadav et al with Sb doped SnO₂ of Yashiro et al as functional equivalent with predictable results and reasonable expectation of success to benefit from transparency and high refractive index because Yadav et al thrives to desired transparency, refractive index and reflection characteristics in matrix containing nanofillers (P-0051), and the teachings are in the analogous art of nanofiller filled matrix.

4. Claims 1-2, 5 and 12 are rejected under 35 USC 103(a) as obvious over Nohr et al (US 2002/0149656).

Nohr et al teach the composition of ink comprising a nanoparticle template encapsulated with a polymeric layer. The template comprised of nanoparticles of antimony tin oxide or indium tin oxide with a particle size of less than 100 nm with an average particle size of 15 nm (P-0023-24). The shape of the nanoparticles included rod, disc or tube (P-0025 acicular; Claims 1, 3-5, 10, 15; Pg-15, Ex-13). The thickness of the polymeric shell was 17.9 nm over a template of 51.2 nm and 16.7 nm thick over a template of 48.2 nm respectively (P-0026, Tbl-1). This obviously meets the limitation of specific insulated ultrafine particle in the claims.

The prior art is fails to teach the instant claimed range for the particle size.

However, the instant claimed range of 5-70 nm lies inside the prior art range of less than 100 nm, and in the case where the claimed ranges "overlap or lie inside ranges disclosed by the

prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With regard to claim-2, prior art composition is similar to that claimed by the applicants and similar compositions are expected to possess similar properties.;

With regard to claim-5, the prior art polymer shell thickness of 15.7 nm and 14.7 nm for the respective core templates lies within the instant claimed range and prima facie obvious over instant claim.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/
November 12, 2008.

/Stanley Silverman/
Supervisory Patent Examiner, Art Unit 1793